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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,496	09/27/2005	Amit Nath	4544-050520	6229
28289	7590	09/04/2007		
THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			EXAMINER ROGERS, DAVID A	
			ART UNIT	PAPER NUMBER
			2856	
			MAIL DATE	DELIVERY MODE
			09/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/524,496

Applicant(s)

NATH ET AL.

Examiner

David A. Rogers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 23-27 are hereby withdrawn from further consideration pursuant to 37 C.F.R. 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 5/17/07.

### ***Claim Objections***

2. Claim 21 is objected to because of the following informality. Claim 21 requires that about 10 ml of volatile substances be sucked up. However, the actual amount of volatile substances in the headspace is unknown. It is suggested that the applicant amend this claim to clarify that 10 ml of headspace sample is sucked up. Appropriate correction is required.

3. Claim 22 is objected to because of the following informality. Claim 22 requires an ECD. The written description, as originally filed, does not state what an ECD is supposed to be. Furthermore, the prior art of chromatographs use ECD for either electrochemical detection or electron capture detector.

### ***Claim Rejections - 35 U.S.C. § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject

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matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Based on the applicant's disclosure it is not known how the applicant intends to perform a qualitative analysis of the headspace sample. Gas chromatographs can perform a quantitative analysis.

***Claim Rejections - 35 U.S.C. § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11, 14, 15, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Flavor/Fragrance Profiles of Instant Coffee and Ground Coffee by Short Path Thermal Desorption" to Overton *et al.* in view of United States Patent 5,545,879 to Brotz, United States Patent 6,395,560 to Markelov, United States Patent 5,711,786 to Hinshaw, and "Analysis of trace gases at ppb levels by proton transfer reaction mass spectrometry (PTR-MS)" to Lindinger *et al.*

Overton *et al.* teaches that it is known to simulate a cup of coffee by dissolving coffee in distilled water and then to incubate the coffee at 60 C in order to determine the presence of volatile substances. With regard to the

steps of using a flask official notice is hereby taken that flasks and tubes are known lab alternatives for holding and heating samples.

Overton *et al.* does not teach a first temperature at which the sample is added is higher than the holding temperature. However, in order to simulate a cup of coffee the distilled water will have a typical temperature that includes 100 C (boiling). See Brotz at column 1 (lines 16-23) where it is taught that it is known to use boiling water for making coffee.

Overton *et al.* also does not teach headspace sampling. Headspace sampling is well known analytical technique for sampling volatile compounds in a liquid. See Markelov where a headspace sampler comprising a sealed vial (reference item 58) having a headspace (reference item 57) is used for obtaining volatile compounds released from a sample. A needle is used to enter the headspace as seen in figure 2. A purge gas (reference item 50) is used to purge the headspace and carry the volatile compounds to a detector for analysis. The purge gas effectively acts as a carrier gas. Markelov does not teach purging with air. Hinshaw, however, teaches that various gasses such as helium, nitrogen, hydrogen, air, or an argon/methane mixture are known alternative carrier gasses. See column 4 (lines 9-12).

Finally, Lindinger *et al.* teaches that when instant coffee is brewed a strong burst of flavors due to the presence of several aromatic compounds. See page 116 where it is stated:

When instant coffee is brewed, several brands of coffee develop a strong first burst of flavours after the water is added to the coffee powder. This burst of initial compounds

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was first measured on line in great detail by PTR-MS and figure 8 shows typical results on the time dependence of several aromatic compounds during the first few minutes. Similar investigations are in progress on tea and chocolate products as well as on the time dependent development of aromatic compounds during cooking of food.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Overton *et al.* with the teachings of Brotz, Markelov, Hinshaw, and Lindinger *et al.* in order to use add a sample to boiling water in order to simulate the brewing of a cup of coffee and so that the initial release of volatile aromatics can be trapped and analyzed. Furthermore, it would have been obvious to one of ordinary skill in the art to use a headspace sampling and purge gas technique to carrier the volatile compounds to an analyzer as this is a common practice for analyzing. All of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predicable results to one of ordinary skill in the art at the time of the applicant's invention.

With regard to 15 one of ordinary skill would recognize that the techniques of Overton *et al.* would be at atmospheric pressure.

8. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* as applied to claim 11 above, and further in view of United States Patent 5,266,496 to Dacruz.

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Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* teach the collection of volatile substances in a headspace. Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* do not teach the use of a vacuum in the headspace.

Dacruz teaches that it is known in headspace sampling to apply a vacuum to the sample (which would include the headspace) in order to facilitate the extraction of volatile compounds. See, for example, column 2 (lines 37-43), column 3 (lines 51-63), and column 4 (lines 44-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* with the teachings of Dacruz in order to apply a vacuum to the sample and the headspace in order to facilitate extraction of some volatile compounds from the sample into the headspace.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* as applied to claim 11 above, and further in view of United States Patent 6,537,802 to Alocilja *et al.*

Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* teach the collection of volatile substances in a headspace by letting the headspace reach equilibrium. Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* do not teach a method where equilibrium takes about 1 hour.

Alocilja *et al.* teaches that it is known that it can take about one hour for the headspace to reach equilibrium. See column 30 (lines 5-16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* with the teachings of Alocilja *et al.* in order to in order to wait about 1 hour for equilibrium to be reached so that the analysis of the headspace produces results consistent with the quantity of volatile compounds present in the sample.

10. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* as applied to claim 11 above, and further in view of United States Patent 2002/0127317 to Hotchkiss *et al.*

Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* teach a method of obtaining a sample from a headspace and subjecting to an analysis in order to determine the presence of volatile compounds. Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* do not expressly teach the size of the sample.

Hotchkiss *et al.* teaches that it is known to obtain a sample size of about 10 ml from the headspace as a representative sample size for analysis. See page 5 (paragraph 73).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Overton *et al.* Brotz, Markelov, Hinshaw, and Lindinger *et al.* with the teachings of Hotchkiss *et al.* in order to use a sample size of about 10 ml from the headspace as it is known that this can be a representative sample size for analysis.



With regard to claim 22 ejecting most of the sample and injecting the remaining sample into a gas chromatograph is functionally equivalent to just taking a smaller sample from the headspace. Finally, official notice is hereby taken that chromatograph with capillaries and ECDs are well known and commonly used for analysis of gas samples.

***Allowable Subject Matter***

11. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

“Chemical Principles” to Masterton teaches that the headspace of a closed environment; e.g., a sealed flask, having a liquid will reach a state of liquid-vapor equilibrium irrespective of the temperature at which the flask is held. That is, irrespective of the temperature, an eventual state of equilibrium will be reached where the number of molecules of the volatile compounds entering the vapor state equals the number of molecules of the volatile compounds entering the liquid state.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600). If attempts to reach the examiner by telephone are

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unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Rogers/  
Examiner - Group Art Unit 2856